

REMARKS

Applicants have amended their claims in order to further clarify the definition of various aspects of the present invention, and so as to facilitate proceedings in connection with the above-identified application. Specifically, Applicants have amended claim 1 to recite a hollow frame member; to recite that the raised portion of this hollow frame member projects to "an outer side" in a thickness direction of the hollow frame member, the raised portion being provided integrally on the end portion of the hollow frame member; and to recite that during the friction stir welding, material of the raised portion of the hollow frame member fills any gaps, between this hollow frame member and another hollow frame member to be welded to this hollow frame member, which exist when these hollow frame members abut each other. Claim 2 has been amended to recite that the raised portion is "integrally" provided on an end portion of the first plate; to recite that the raised portion projects to an outer side in a thickness direction of the first plate "from one side of the first plate"; and to recite that during the friction stir welding, material of the raised portion of the first plate fills any gaps, between the recited hollow frame member and another hollow frame member to be welded to this hollow frame member, which exist when these hollow frame members abut each other. In light of amendments to claim 2, claims 4 and 5 have been cancelled without prejudice or disclaimer. Moreover, claim 3 has been amended to recite that the further raised portion projects to an outer side in a thickness direction of the second plate "from one side of the second plate".

In connection with amendments to previously considered claims, note, for example, Fig. 7 and the corresponding description in connection therewith, for example, on pages 9 and 10 of Applicants' specification.

Initially, it is respectfully requested, that the present amendments be entered. Noting, for example, recitation in claim 2 and claims dependent thereon of a hollow

frame member, it is respectfully submitted that amendment of claim 1 to recite a hollow frame member materially limits issues remaining in connection with the above-identified application, clearly obviating the rejection under 35 USC 102(a), and clearly does not raise any new issues. Moreover, in reciting that the raised portion is integral and projects to "an outer side" in a thickness direction of the hollow frame member (first plate), it is respectfully submitted that these amendments materially limit issues remaining in connection with the above-identified application and further clarify the definition of the present invention, and do not raise any new issues, including any issue of new matter. Moreover, noting further contentions by the Examiner in the Office Action mailed May 12, 2005, it is respectfully submitted that the present amendments are timely.

In view of the foregoing, it is respectfully submitted that Applicants have made the necessary showing under 37 CFR 1.116(c), for entry of the present amendments notwithstanding Finality of the Office Action mailed May 12, 2005; and that, accordingly, entry of the present amendments is proper.

Applicants respectfully submit that all of the claims presented for consideration by the Examiner patentably distinguish over the teachings of the references applied by the Examiner in rejecting claims in the Office Action mailed May 12, 2005, that is, the teachings of International (PCT) Publication No. WO 95/26254 (Midling, et al.) and of Japanese Patent Document No. 2-246863 (Mochizuki, et al.), under the provisions of 35 USC 102 and 35 USC 103.

Initially, noting that claim 1 (and claims dependent thereon) have been amended to recite a "hollow frame member", it is respectfully submitted that the rejection of claims 1, 14 and 15 under 35 USC 102(a) as being anticipated by Midling, et al., has clearly been overcome.

In any event, it is respectfully submitted that the references as applied by the Examiner would have neither taught nor would have suggested such hollow frame member as in the present claims, having the raised portion of the hollow frame member projecting to an outer side in a thickness direction of the hollow frame member from one side face of the hollow frame member, the raised portion being integrally provided on the end portion of the hollow frame member, the hollow frame member being adapted to be used in friction stir welding and the raised portion being adapted to have a rotary tool inserted therein thus to carry out the friction stir welding, and wherein, during the friction stir welding, material of the raised portion of the hollow frame member fills any gaps, between the hollow frame member and another hollow frame member to be welded to the hollow frame member, which exist when these hollow frame members abut each other. See claim 1; note also claim 2.

In addition, it is respectfully submitted that the applied references would have neither disclosed nor would have suggested such a hollow frame member as in the present claims, having a first plate, a second plate substantially in parallel to the first plate and a third plate connecting the first and second plates, with the raised portion (discussed previously) being integrally provided on an end portion of the first plate, and this raised portion projecting to an outer side in a thickness direction of the first plate from one side face of the first plate. See claim 2.

Furthermore, it is respectfully submitted that the applied references would have neither taught nor would have suggested such a hollow frame member as in the present claims, having features as discussed previously in connection with claim 2, and, moreover, wherein at an end portion of the second plate, at a side of the end portion of the first plate having the raised portion, the hollow frame member has a further raised portion which projects to an outer side in a thickness direction of the second plate from one side face of the second plate, with this further raised portion

adapted to have the rotary tool inserted therein so as to carry out friction stir welding, and wherein, during the friction stir welding, material of the further raised portion of the second plate fills any gaps, between the hollow frame member and the another hollow frame member to be welded to the hollow frame member, which exist when the hollow frame members abut each other. See claim 3.

In addition, it is respectfully submitted that the teachings of the applied references would have neither disclosed nor would have suggested other features of the present invention as in the remaining, dependent claims, which have features as discussed previously in connection with claims 1, 2 and 3, and, in particular, wherein the first plate (or first and second plates) of the hollow frame member respectively have exposed outer faces, with the raised portion (or raised portion and further raised portion) respectively projecting beyond the exposed outer faces in the thickness direction (see claims 6 and 10); and/or wherein the exposed outer faces are exposed during the friction stir welding (see claims 7, 11 and 14); and/or wherein the thickness direction is a direction perpendicular to the exposed outer faces and/or one side face (see claims 9, 12, 13 and 15).

As described, for example, in the last full paragraph on page 9 of Applicants' specification, by including the raised portion which projects to an outer side in a thickness direction of the hollow frame member (or of the first plate), if there is a gap between the hollow frame members before welding the gap can be filled with the material of the raised portions, improving the appearance and reducing the amount of putty required in order to provide a planar surface. That is, sunken portions or recesses in the weld bead, due to material filling the gaps, when there is no raised portion, can be avoided, thereby improving the product formed.

In addition, by integrally providing the raised portion on the end portion of the hollow frame member, with the raised portion adapted to have the rotary tool

inserted therein so as to carry out the friction stir welding, manufacturing of the structure being friction stir welded can be easily and effectively achieved (for example, the hollow frame member can be made as a single integral member, e.g., by extrusion, with the raised portion, for example, of a same material as a remainder of the hollow frame member), and friction stir welding with the rotary tool being inserted into this integral raised portion can easily and effectively be performed.

Midling, et al. discloses a technique of friction stir welding, wherein the non-consumable probe used in the friction stir welding has a bottom part 23 (shoulder) (see Fig. 3) exhibiting a concave surface, while the pin 24 of the probe has an outer surface provided with alternately protruding and recessed parts along its longitudinal axis. See the last full paragraph on page 3. Note also the last full paragraph on page 4. In Figs. 5a-e of this published patent document are displayed schematically in fragmentary perspective views, different types of welds provided by the method and probe including, in Fig. 5c, an overlap weld seam.

It is respectfully submitted that even as applied by the Examiner, noting Fig. 5c of Midling, et al., this reference would have neither taught nor would have suggested a hollow frame member as in the present claims, and thus clearly would have neither disclosed nor would have suggested the presently claimed subject matter of the hollow frame member.

In addition, it is respectfully submitted that Midling, et al. would have neither taught nor would have suggested such hollow frame member as in the present claims, including the raised portion as defined therein, and in particular wherein such raised portion is integrally provided and projects to an outer side in a thickness direction of the hollow frame member (first plate), such that material of this raised portion fills gaps, as defined in the present claims. Fig. 5c of Midling, et al. shows overlapping surfaces, with the overlapping, extending surfaces being parallel to

faces of the members being welded; and it is respectfully submitted that this reference would have neither taught nor would have suggested, and would in fact have taught away from, a raised portion which projects to an outer side in a thickness direction of the hollow frame member (first plate), more particularly wherein said raised portion projects beyond the exposed outer faces in the thickness direction, especially where this thickness direction is perpendicular to specified components of the hollow frame member, and advantages thereof as discussed in the foregoing.

Mochizuki, et al. discloses a vehicular body structure constructed by assembling an appropriate number of window forming materials and wainscot panel forming materials as the side structure, roof forming material and pole plate forming material as the roof structure, and floor forming material and side beam forming material has an underframe respectively as occasion demands. This patent document discloses that among these components, the window part forming member is provided protrusively with a receiving piece for supporting the upper or lower edge of a window frame, and that side edges of the forming members are placed facingly and their inner and outer parts bonded by welding.

Midling, et al. has been previously discussed.

Even assuming, arguendo, that, the teachings of Mochizuki, et al. and Midling, et al. were properly combinable, such combined teachings would have neither disclosed nor would have suggested the raised portion (or raised portion and further raised portion) as in the present claims, including wherein such raised portion is integrally provided and projects to an outer side in the thickness direction of the hollow frame member (first plate), and is provided such that during the friction stir welding material thereof fills any gaps which exist when the members being welded abut each other, and advantages of this structure.

The contention by the Examiner on page 3 of the Office Action mailed November 2, 2004, that Mochizuki, et al. discloses a raised portion provided on an end portion of the first plate, the Examiner referring to Item 27f in Fig. 2, is respectfully traversed. Item 27f in Fig. 2 of Mochizuki, et al. represents a member extending substantially parallel to outer exposed faces of the structure in a direction perpendicular to the thickness direction of the plates/member. It is respectfully submitted that this disclosure would have taught away from the raised portions as in the present claims, and would have neither taught nor would have suggested the advantages achieved by the present invention.

The contention by the Examiner on page 2 of the Office Action mailed May 12, 2005, that Midling, et al. teaches a member adapted to be used in friction stir welding, "said member [having] a raised portion which projects to a thickness direction of said member from one side face of said member (figure 5c)", is respectfully traversed. It is respectfully submitted that Fig. 5c in Midling, et al. shows plates having overlapping end portions, the overlapping end portions having, at most, end portions projecting in a width direction (not in a thickness direction) of the member. It is respectfully submitted that this disclosure in Fig. 5c of Midling, et al. would have neither taught nor would have suggested the raised portion projecting to an outer side in a thickness direction of the hollow frame member from one side face of the hollow frame member, and advantages thereof as recited in the present claims.

The contention by the Examiner on page 4 of the Office Action mailed May 12, 2005, that the features upon which Applicants rely (material of the raised portion filling the gap between the two members leaving a weld bead free of any sunken or recessed portions) are not recited in the rejected claims, is noted. However, attention is respectfully directed to the last sub-paragraph in each of

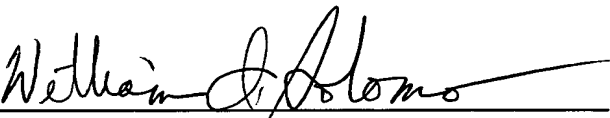
claims 1-3, reciting that during the friction stir welding material of the raised portion of the hollow frame member fills any gaps. It is respectfully submitted that the present claims define advantages achieved according to the present invention.

In view of the foregoing comments and amendments, entry of the present amendments, and reconsideration and allowance of all claims remaining in the application, are respectfully requested.

Applicants request any shortage of fees due in connection with the filing of this paper be charged to the Deposit Account of Antonelli, Terry, Stout & Kraus, LLP, Deposit Account No. 01-2135 (case 503.35255VX4), or credit any excess fees paid to such Deposit Account.

Respectfully submitted,

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